

ABSTRACT OF THE DISCLOSURE

A multi-port optical coupler applies the transition loss principle to exchange light among optical fibers through optical fiber bends. In a four-port embodiment, the coupler includes first and second injector fibers located in precise optical alignment on a substrate. A continuous fiber segment is configured so that a portion thereof is positioned on the substrate between and in optical alignment with the injector fibers. This portion of the fiber segment can be moved to a second position out of alignment with the injector fibers. First and second depressors impart first and second bends to portions of the fiber segment adjacent to and in optical alignment with the first and second injector fibers. Light can be injected into or extracted from the fiber segment through these bends by the injector fibers when the fiber bend is severe enough to create a transition loss and when the bends are in optical alignment with the injector fibers. The depressors can be adjustable to allow independent adjustment of the first and second bends and, therefore, the respective transition loss. When the bends are moved out of alignment with the injector fibers or are relaxed so that the transition loss is extinguished, the coupler is in effect turned off.

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